Fiber-Optic Wacky Light

Investigate fiber optics by building a device with light-up tentacles.

Kit contains:

- 1 long strand of optical fiber
- 1 pool noodle cross section
- 1 LED bulb
- 1 coin battery
- 1 small strip of cardboard

You will need: scissors and a table knife.

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INSTRUCTIONS

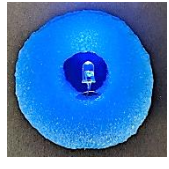
Step 1. Use a table knife to poke a slit in the pool noodle (outside to center) as shown.

Note: If you *think* you might need permission or help from a grown-up, please find a grown-up!

Step 2. Bend the leads on your LED bulb so that it straddles the battery and lights up.

Step 3. Push your LED/battery combo into the slit in the pool noodle so that the battery is encased in foam and the bulb is in the center.

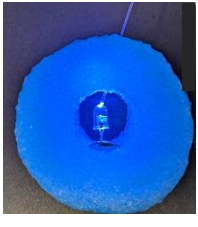
or

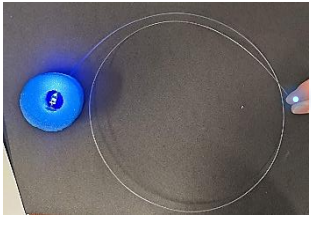


Step 4: Adjust. If your light is OFF in its resting state, squeeze the pool noodle around the battery to complete the circuit and turn it on. If your light is ON in its resting state, slide the strip of cardboard between the battery and a wire lead to break the circuit and turn it off.

or

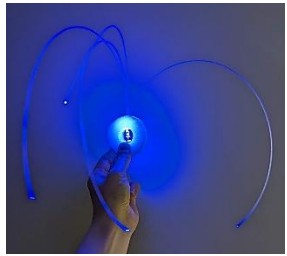
Step 5. Poke the long strand of optical fiber through the pool noodle so that an end is touching the top of the LED bulb.



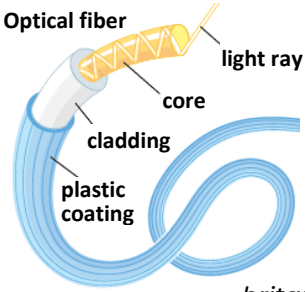


Experiment with your fiber-optic light. How does darkness affect the light at its tip? Does it go around corners? How long does it take the tip of the strand to light up?

Step 6. Remove your long strand of optical fiber from the pool noodle, and cut it into shorter pieces. Push those shorter pieces back through the foam (like step 5) to create a many-stranded wacky light. Now you can go have a wacky light dance party!



Fiber optics is the science of transmitting data by sending light through thin, transparent fibers of glass or plastic. These optical fibers can be in single strands or bundled into cables, and have the ability to move light over distances of more than 100 miles.



britannica.com/science/fiber-optics